

NOVEMBER/DECEMBER 2024

**23PSCH25B — INDUSTRIAL CHEMISTRY
(SEC I)**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Write any two principles of Good Laboratory Practices.
2. Give a brief note on Six Sigma.
3. Write the difference between free moisture and bound moisture.
4. Highlight the two factors affecting the rate of evaporation.
5. What does a flow/block diagram represent in a chemical process?
6. Write a note on material balance account.
7. What is the purpose of refining in metallurgy?
8. Write a brief note on the froth flotation process.

9. How are hazardous chemicals classified?
10. What are the applications of molecular sensors?

SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL the questions.

11. (a) Discuss the case studies on ISO9001:2000 in chemical industries.

Or

- (b) Explain the principles of GMP in drugs and pharmaceutical industries.

12. (a) Briefly discuss the advantages and disadvantages of steam distillation compared to simple distillation.

Or

- (b) Explain the purpose of drying in the chemical process industry and the choice of a dryer.

13. (a) Explain the concept of gas stripping in relation to absorption.

Or

- (b) Explain the difference between steady-state and unsteady-state flow processes in the context of material balance.

14. (a) Describe the aluminothermite reduction.

Or

- (b) Compare and contrast the different methods for refining metals.

15. (a) Explain the concept of risk assessment in industrial settings.

Or

- (b) Discuss the importance of effluent quality standards and relevant laws.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Summarise the ICH guidelines on drug substances and products.

17. Describe the factors to consider when choosing an appropriate evaporators for a specific application.

18. Describe the principle of operation for a bag filter and a candle filter. Include advantages and disadvantages of each.

19. Describe the process involved in aluminum extraction from bauxite.

20. Explain the concept of advanced wastewater treatment and its role in achieving stricter effluent quality standards.